

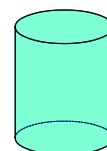
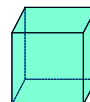
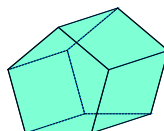
Chapters 12 and 13 Areas and Volume

Prisms and Cylinders

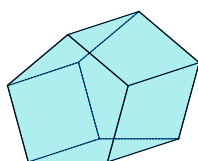
12-3

12-4

13-1

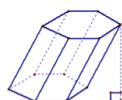


bases
lateral faces
lateral edges
altitudes



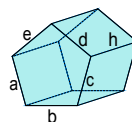
right prism

oblique prism



Lateral Area--(L) or (LA)--sum of the areas of the lateral faces

Surface Area--(T) or (TA)--sum of the areas of all of the faces



$$LA = ah + bh + ch + dh + eh$$

$$h(a + b + c + d + e)$$

$$LA = ph$$

p - perimeter of base

$$TA = LA + 2B$$

B - area of base

$$LA = ph$$

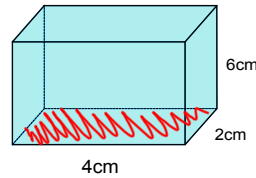
p = perimeter of base

$$TA = LA + 2B$$

B = area of the Base

$$V = Bh$$

ex 1:



$$p = 12 \text{ cm}$$

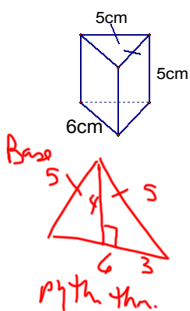
$$B = 8 \text{ cm}^2$$

$$LA = ph = 12 \cdot 6 = 72 \text{ cm}^2$$

$$TA = LA + 2B = 72 + 2(8) = 88 \text{ cm}^2$$

$$V = Bh = 8 \cdot 6 = 48 \text{ cm}^3$$

ex 2:



$$p = 5 + 5 + 6 = 16 \text{ cm}$$

$$B = \frac{1}{2}bh = \frac{1}{2} \cdot 6 \cdot 4 = 12 \text{ cm}^2$$

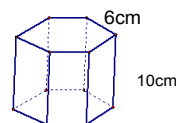
$$LA = 16 \cdot 5 = 80 \text{ cm}^2$$

$$TA = LA + 2B = 80 + 2(12) = 104 \text{ cm}^2$$

$$V = 12 \cdot 5 = 60 \text{ cm}^3$$

ex 3:

Base is regular.



$$B = \frac{1}{2}ap$$



$$p = 36 \text{ cm}$$

$$B = \frac{1}{2} \cdot 3\sqrt{3} \cdot (36) = 54\sqrt{3} \text{ cm}^2$$

$$LA = 36 \cdot 10 = 360 \text{ cm}^2$$

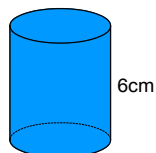
$$TA = 360 + 2(54\sqrt{3}) \approx 547.1 \text{ cm}^2$$

$$V = 540\sqrt{3} \text{ cm}^3$$

ex 4:

$$C = 2\pi r$$

$$A = \pi r^2$$



$$r = 4\text{cm}$$

$$p = 8\pi \text{ cm}$$

$$B = 16\pi \text{ cm}^2$$

$$LA = 8\pi \cdot 6 = 48\pi \text{ cm}^2$$

$$TA = 48\pi + 2(16\pi) = 80\pi \text{ cm}^2$$

$$V = 16\pi \cdot 6 = 96\pi \text{ cm}^3$$

ex 5: Work backwards.

Cylinder
 $V = 768 \pi \text{ u}^3$
 $h = 12 \text{ units}$

$$V = \pi r^2 h$$

$$\frac{768\pi}{12\pi} = \frac{\pi r^2}{\pi} \cdot \frac{12}{12}$$

$$r = 8 \text{ units}$$

$$C = 16\pi \text{ u}$$

$$64 = r^2$$

$$LA = ph = 16\pi \cdot 12 = 192\pi \text{ u}^2$$

$$TA = 192\pi + 2(64\pi) = 320\pi \text{ u}^2$$

HW

p651-652 7-10, 16-20
 p657 13-16
 p 692 7-9, 12

Read Directions! Only asked to find one part.